The Late Permian in the Muarádzi Sub-basin, Moatize-Minjova Basin, Mozambique – multidisciplinary palaeoenvironmental characterization

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A study involving lithofacies, palynofacies, and palynological analysis is presented for the Muarádzi Sub-basin. This sub-basin is part of the Moatize-Minjova Basin (MMB), a crucial Karoo aged coalfield in Mozambique previously situated in the southern-central part of Gondwana.
The study of Lopes et al. (2021) presents the data of 3 coal exploration boreholes. This study enabled the characterization of the depositional environments and existing palaeofloras in the Muarádzi Sub-basin. The palynological data indicates that all the successions have a Lopingian age and the vegetation recorded is typical of the Glossopteris Province. The flora is dominated by glossopterids (*Protohaploxypinus* and *Striatopodocarpites*) and gymnosperm pollen (*Alisporites*). Other palynomorphs revealed the presence of ferns (e.g., *Osmundidacites senectus, Thymospora pseudothiessenii*), sphenopsids (e.g., *Calamospora*), and lycopsids (e.g., *Lundbladispora, Kraeuselisporites*) in the area. The palynological data, together with the palynofacies and lithofacies analysis, indicates a typical lowland setting. It was an area where floodplains, wetlands, and small lakes dominated, controlled by tectonic movements associated with a continental rifting pulse. Correlation between the three sections enabled the recognition of an initial meandering fluvial system affected by repeated flooding events that changed to a braided river. Additionally, humid and warm climates promoted widespread vegetation growth, leading to the accumulation of numerous thin barcode coal beds in anoxic-dysoxic depositional environments.

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